

AD-A284 470



ADST/WDL/TR--94-W003322A



Advanced Distributed
Simulation Technology

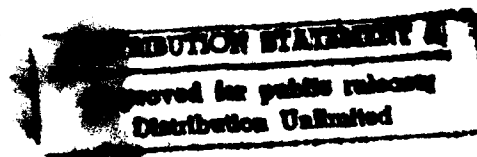
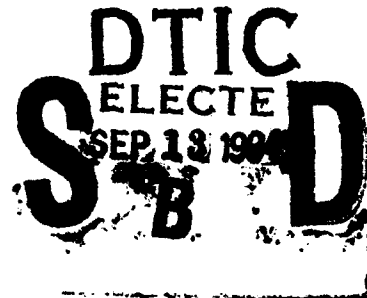
DISTRIBUTED INTERACTIVE SIMULATION INTERFACE LIBRARY VERSION DESCRIPTION DOCUMENT

26 August 1994
Revision 2.0

Prepared for:
STRICOM

U.S. Army Simulation Training and Instrumentation Command
12350 Research Parkway
Orlando, FL 32826-3276

Contract No. N61339-91-D-0001
Architecture and Standards Phase 2
Delivery Order 0035
CDRL A001



DTIC QUALITY INSPECTED 8

LOCAL

ADST Program Office
12151-A Research Parkway
Orlando, FL 32826

94-29642



SP6

94 9 12 059

REPORT DOCUMENTATION PAGE			Form approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 8/26/94		3. REPORT TYPE AND DATES COVERED Version Description Document 8/26/94
4. TITLE AND SUBTITLE Distributed Interactive Simulation Interface Library Version Description Document			5. FUNDING NUMBERS Contract No. N61339-91-D-0001	
6. AUTHOR(S) AcuSoft				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Loral Systems Company ADST Program Office 12151-A Research Parkway Orlando, FL, 32826-3283			8. PERFORMING ORGANIZATION REPORT NUMBER ADST/WDL/TR-W003322A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Simulation, Training and Instrumentation Command (STRICOM) Naval Air Warfare Center - Test Systems Division (NAWC-TSD) 12350 Research Parkway Orlando, FL, 32826-3224			10. SPONSORING ORGANIZATION REPORT A001	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Distribution authorized unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (Maximum 200 words) This document provides version descriptions for each component of the Distributed Interactive Simulation (DIS) Interface Library (DIL) and instructions for installing the DIL on a target system.				
14. SUBJECT TERMS			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED		18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED		19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED
				20. LIMITATION OF ABSTRACT UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std Z39-18
298-102

26 August 1994

LORAL

Systems Company

ADST Program Office
12151-A Research Parkway
Orlando, Florida 32826

**Advanced Distributed
Simulation Technology**

**DISTRIBUTED INTERACTIVE
SIMULATION INTERFACE LIBRARY
VERSION DESCRIPTION DOCUMENT**

Revision 2.0

	APPROVAL	DATE
AUTHOR:	_____	_____
D.O. MANAGER:	_____	_____
SUB-CONTRACTS:	_____	_____
CONTRACTS:	_____	_____
PROGRAM MANAGER:	_____	_____

26 August 1994

TABLE OF CONTENTS

1	Scope	1
1.1	Overview	1
1.2	Document Overview	2
2	Applicable Documents	2
3	Version Description	3
3.1	DIL Version	3
3.2	Component Versions	3
3.3	Component Enhancements	4
3.4	Component Additions	4
4	Resource Requirements	5
4.1	Hardware Resources	5
4.2	Software Resources	5
4.3	Release Media	5
5	Installation Instructions	6
6	Release Structure	7
6.1	Directory Structure	8
6.2	Executables	10
6.2.1	SGI IRIX 5.X Software	10
6.2.2	SGI IRIX 4.X Software	10
6.2.3	SUNOS 4.1.X Software	11
6.3	Additional Documentation	11
6.3.1	Protocol Translator Cell Adapter Unit	11
6.3.2	Developer's Tools	12

LIST OF ILLUSTRATIONS

4.3-1	CSCI External Interface Requirements	6
-------	--------------------------------------	---

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or
A-1	Special

1 Scope.

1.1 DIL Overview.

The Distributed Interactive Simulation (DIS) Interface Library (DIL) provides source code libraries for use in developing DIS simulation applications. These include:

- a. Simulation Network Interface Package (SNIP). SNIP provides a simulation networking protocol independent and network media independent interface to a simulation network. It currently supports the basic four PDUs in both DIS 2.0.3 and SIMNET 6.6.1. Included with SNIP are several DIS applications:
 - 1) Cell Adapter Unit (cau). The CAU provides a bi-directional interface between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows interaction between the DIS and non-DIS entities during an exercise.
 - 2) Selective Cell Adapter Unit (scau). The SCAU provides a bi-directional interface with PDU filtering between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows selective interaction between the DIS and non-DIS entities during an exercise.
 - 3) Cell Interface Unit (ciu). The CIU provides a bi-directional interface with PDU filtering between a DIS simulation cell and a low bandwidth (long-haul) DIS network.
- b. Lib Packet Valve (libpktvalve). Libpktvalve provides another simulation network interface that supports DIS 2.0.3 and SIMNET 6.6.1. It provides a "lower" level interface than SNIP and supports more PDUs. It is the networking interface used by ModSAF.
- c. Protocol Translator Cell Adaptor Unit (xcau). The XCAU provides a bi-directional interface between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows interaction between the DIS and non-DIS entities during an exercise. The XCAU is based upon the libpktvalve and currently supports 17 PDUs.

1.2 Document Overview.

This document provides version descriptions for each component of the DIL and instructions for installing the DIL on a target system.

2 Applicable Documents.

The documents referenced here are applicable to the program effort only to the extent defined, and are included for reference purposes. This document takes precedence in the event of conflict with any of the referenced documents.

- a. Cold Start Procedure (CSP) (Version 3.0.0, 6/9/94, TR-93-003214).
- b. Version Description Document (VDD) (Version 3.0.0, 6/9/94, TR-93-003213).
- c. Interface Requirements Specification (IRS) (5/1/93).
- d. Software Maintenance Manual (SMM) (TR-93-003064).
- e. System/Segment Design Document (SSDD) (5/1/93, DI-CMAN-80534).
- f. Software Requirements Specification (SRS) (draft).

3 Version Description.

3.1 DIL Version.

This version of the DIL is numbered Version 2.2.2. It encompasses several enhancements to components included in previous versions. It also includes several new components as part of the library. The component versions and descriptions of the enhancements and additions are included in the following paragraphs.

3.2 Component Versions

The components included in this version of the DIL and their component versions are:

- a. Simulation Network Interface Package (SNIP) library -- Version 2.2.2.
 - 1) Cell Adapter Unit (cau) -- Version 2.2.2.
 - 2) Selective Cell Adapter Unit (scau) -- Version 2.2.2.
 - 3) Cell Interface Unit (ciu) -- Version 2.2.2.
- b. Lib Packet Valve (libpktvalve) -- Version 1.34.
- c. Protocol Translator Cell Adaptor Unit (xcau) -- Version 3.1.

3.3 Component Enhancements

The following components have been enhanced in this release.

- a. Simulation Network Interface Package (SNIP) library:
 - 1) Fixed "mystery 1" bug.
 - 2) Fixed memory leaks.
 - 3) Fixed SIU timestamp error.
- b. Cell Adapter Unit (cau): SNIP Bug Fixes.
- c. Selective Cell Adapter Unit (scau): SNIP Bug Fixes.

- d. Cell Interface Unit (ciu): SNIP Bug Fixes.

3.4 Component Additions.

The following components have been added in this release.

- a. Protocol Translator CAU (xcau).
- b. Protocol Translator status (xcau_stat).

4 Resource Requirements.

4.1 Hardware Resources.

The DIL components released with this version are supported on the following platforms:

- a. Silicon Graphics workstation, running IRIX 5.2, with 64+ MB memory and 500+ MB disk.
- b. Silicon Graphics workstation, running IRIX 4.0.5, with 64+ MB memory and 500+ MB disk.
- c. SUN Microsystems workstation, running SunOS 4.1.X, with 64+ MB memory and 500+ MB disk.

4.2 Software Resources.

The source code libraries are developed in the C language and are available as both K&R and ANSI C. To re-compile the libraries and the applications based upon those libraries, a C language compiler is required.

4.3 Release Media.

The DIL is released as a "compressed tar" file. This tar file is available via a Sun format DC6150 QJC tape or via FTP. If the release was obtained via QJC tape, a QJC 24 tape drive will be required to retrieve the file from the tape.

The QJC tape, if supplied, is labeled as shown in Figure 4.3-1:

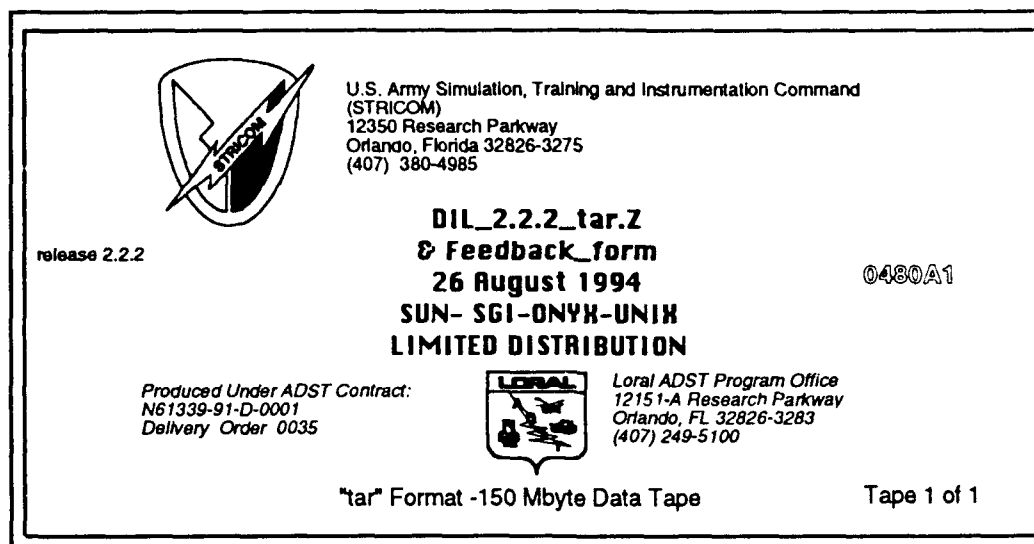


Figure 4.3-1. DIL 2.2.2 Release Tape Label

5 Installation Instructions.

This section describes the installation procedure for the DIL version 2.2.2 software. The DIS Interface Library (DIL) distributions are shipped as compressed tar archives. The archives must be loaded on the target machine, decompressed, and unarchived (un-tared). The following procedure illustrates this procedure.

NOTE: A complete distribution may require up to 84 megabytes of storage.

- a. First, determine where the software should be installed.

NOTE: For these examples, the software is installed in `"/usr/local/ddt"`.

- b. If needed, make a directory using the following command:

```
mkdir /usr/local/ddt
```

- c. Change directories to the directory where the software should be installed using the following command:

```
cd /usr/local/ddt
```

- d. If you received the release via tape, insert the tape into the QIC-150 drive and load the tape using the following command:

```
tar xvof /dev/rmt/0                (Sun Solaris 2.3)
tar xvof /dev/rst8                 (Sun SunOS 4.1.x)
dd if=/dev/tape conv=swab | tar xvof -      (SGI)
```

- e. If you will be retrieving the release via FTP, retrieve it to this location.
- f. Following this, there should be a compressed tar file in the current directory. Uncompress the file using the following command:

```
uncompress *.Z
```

- g. Unarchive the file, using the following command:

```
tar xvof *.tar
```

- h. There should now be a directory named rel_2.2.2. It contains the DIL version 2.2.2 release.

Under the rel_2.2.2 directory, there should be several subdirectories and files, including (at least) "bin", "libpktvalve", "snip", and "xcau". There are several README files present in various directories. These contain special notes and information. It is a good practice to examine these README files if you plan on using the applications in that directory tree.

6 Release Structure.

The DIL Version 2.2.2 release has been arranged such that each tool within the library is contained within its own tree with all of the binaries contained (via symbolic links) in a single directory.

6.1 Directory Structure.

This paragraph provides a short description of each directory within the first two levels. A complete listing for the directory tree is included as Appendix A.

a. bin	application executables
onyx	SGI executables specific to IRIX 5.X
sgi	SGI executables specific to IRIX 4.X
sun	SUN(SPARC) SunOS 4.1.X executables
c. libpktvalue	packet value development tree
Components	packet valve component library listing
Makefile	packet valve make script
RCS	RCS Configuration Management Directory
Release	release directory contents and information
libpktvalve.h	packet valve source code
libpktvalve.texinfo	packet valve source code
libpv_local.h	packet valve source code
pkttee.c	packet valve source code
pv_assoc.c	packet valve source code
pv_convert.c	packet valve source code
pv_event.c	packet valve source code
pv_init.c	packet valve source code
pv_io.c	packet valve source code
pv_null.c	packet valve source code
pv_preempt.c	packet valve source code
pv_router.c	packet valve source code
pv_shm.c	packet valve source code
pv_stats.c	packet valve source code

pv_udp.c	packet valve source code
rec_preempt_test.c	packet valve source code
router.rdr	packet valve data file
snd_preempt_test.c	packet valve source code
test.c	packet valve source code
testshm.c	packet valve source code
d. snip	SNIP libraries and applications
design	design files and documentation for DIL
doc	SNIP documentation
man	this is a link to doc/man3
onyx	SNIP IRIX version 5 source tree
sgi	SNIP IRIX version 4 source tree
sun	SNIP SunOS version 4.1.X source tree
e. xcau	Protocol Translator (XCAU) dvlpt. directory
INSTALL	installation script for the XCAU tree
bin	XCAU binaries
config	XCAU configuration files
data	XCAU data files
doc	XCAU documentation
include	XCAU include libraries and files
info	XCAU component documentation files
lib	XCAU libraries
src	XCAU development trees
tools	XCAU tools

6.2 Executables.

6.2.1 SGI IRIX 5.X Software.

The software targeted for the SGI IRIX 5.X environment includes the following executables:

- a. cau
- b. ciu
- c. pkttap
- d. scau
- e. xcau
- f. xcau_stat

6.2.2 SGI IRIX 4.X Software.

The software targeted for the SGI IRIX 4.X environment includes the following executables:

- a. cau
- b. ciu
- c. pkttap
- d. scau
- e. xcau
- f. xcau_stat

6.2.3 SUNOS 4.1.X Software.

The software targeted for the SUNOS 4.1.X environment includes the following executables:

- a. cau
- b. ciu
- c. pkttap
- d. scau
- e. xcau
- f. xcau_stat

6.3 Additional Documentation.

6.3.1 Protocol Translator Cell Adapter Unit.

The following documentation provides more complete information about the Protocol Translator Cell Adapter Unit (XCAU).

- a. Cold Start Procedure (CSP) (Version 3.0.0, 6/9/94, TR-93-003214).
- b. Version Description Document (VDD) (Version 3.0.0, 6/9/94, TR-93-003213).
- c. Interface Requirements Specification (IRS) (5/1/93).
- d. Software Maintenance Manual (SMM) (TR-93-003064).
- e. System/Segment Design Document (SSDD) (5/1/93, DI-CMAN-80534).
- f. Software Requirements Specification (SRS) (draft).